

PROGNOSTIC CELL FOR PREDICTING FAILURE OF INTEGRATED
CIRCUITS

5 ABSTRACT OF THE INVENTION

A prognostic cell is used to predict impending failure of a useful circuit or circuits in a host IC. Increasing the stress on the prognostic cell relative to the useful circuit shifts the failure distribution of the cell along the time 10 axis. The relative amount of time between the useful circuit failure and prognostic cell trigger point is the "prognostic distance". The prognostic distance is controlled by designing in the excess stress applied in test device(s), by setting the threshold for triggering in the comparison circuit or by both. 15 Prediction accuracy is enhanced by using multiple test devices to oversample the underlying failure distribution and triggering the failure indicator when a certain fraction fail.